Background Study

Commission of Inquiry on the Pharmaceutical Industry

Canada

A Survey of the Economics of the Retail Pharmacy Sector in Canada

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1. INTRODUCTION

Two public policy concerns regarding prescription drugs are to ensure their safety and efficacy when used by the patient, and to provide financial assistance to some or all of the population when they use drugs. The latter can be met either by governments paying for drugs out of general tax revenue, or by measures which reduce the price of drugs to patients. Either way consumers and taxpayers pay for drugs, and the question becomes which consumers and taxpayers and how much each pays.

These two policy concerns are addressed by measures which are administered in Canada by the Federal and the Provincial governments. Federal policies deal primarily with drug safety and efficacy, patenting and compulsory licencing. Provincial policies address certain aspects of drug safety and efficacy, but are mainly concerned with schemes which reimburse patients directly or indirectly when they are prescribed drugs, and which affect the price paid by cash customers who are not reimbursed by Provincial governments. The provinces also empower the professional bodies of doctors and pharmacists to establish rules and procedures for their respective professionals.

These policies can be examined separately or according to the ways in which they interact with each other. The process

of interaction is the area which, in the writer's opinion, requires particular attention, given the existing literature on the economic as well as the non-economic aspects of drugs.

The interaction of federal, provincial and probably municipal policies has to be placed alongside the successive stages of production and distribution in the pharmaceutical industry, from research and development (R&D) to the patient, and finally to the patient's health, which may be improved, worsened or left unchanged by the prescribed drug [1]. The flip-side to this is that the patient may be better off, worse off, or no worse off without the drug. Safety and efficacy regulations are aimed at determining this question, but because of residual uncertainty about any product, the decision whether or not to prescribe often remains at the discretion of the doctor and pharmacist.

One of the final stages of drug distribution rests with the retail pharmacies. The efficiency with which pharmacies operate is clearly an important issue affecting the cost of drugs to governments (taxpayers) and to individuals. In addition, pharmacists have a role as prescribers of non-prescription drugs and so their actions can affect the health of the population. The purpose of this paper is to survey what is known about the economics of pharmacy operations in Canada, in order to comment on efficiency aspects and the nature and strength of competition at the retail pharmacy level. Apart from the narrower economic considerations, it may also be possible to suggest how the operations of retail pharmacies

affect other governmental drug policy concerns.

The thrust of the survey will be to examine the nature (causes and consequences) of competition at the retail pharmacy level based on the standard industrial organization concepts of structure, conduct and performance [2]. In addition, use will be made of O.E. Williamson's work on transaction costs concepts [3].

The following parts of the paper will survey the available data on retail pharmacies, examine the structure, performance and conduct of the industry, note the relevant government policies and provide some comparative remarks about industry conditions in the U.S. A final section will summarise the discussion.

2. THE INDUSTRY AND STRUCTURE

The stages of production and distribution for drugs can be described in physical terms, and in terms of the knowledge which is embodied in the drug. Under the former, the ingredients for the drug are discovered, combined in various dosage forms, tested, manufactured, distributed to wholesalers, retailers, hospitals and governments, and finally to patients.

In knowledge terms, research and development is undertaken to produce a safe and efficacious drug, which embodies information or knowledge. That knowledge must be made known to the prescribing physician, and to the pharmacist in the case of ethical prescription and non-prescription drugs as well as over-the-counter (OTC) drugs. Knowledge about OTC drugs is, in

addition, communicated by advertising directly to the patient who, in this instance, makes the decision about what to purchase. Finally, it is the knowledge embodied in the prescribed drug which, in a sense, alters the health of the recipient. Some patients' health is improved by taking a drug with no active ingredient (the placebo effect), that is with no embodied R&D.

The information, communication and knowledge aspects of drugs suggest that there has to be a free flow of unbiased information in the system, in order for the beneficial effects of drugs to be fully realised. If for any reason, there is an incentive to bias or not to disclose certain information, then the system can be undermined. A number of people or organisations are responsible for that free flow - the manufacturers, government drug testing agencies, the physicians, pharmacists and to some extent the patient. However, the last is in a peculiar position, as has been pointed out many times. Often the physician or pharmacist prescribes, the patient consumes, and the government or some third party insurer pays for the drugs. Even when the patient pays directly for a prescription drug, he or she does not decide what to purchase. The role of the pharmacist in this information processing system needs to be understood, in order to determine whether there are incentives to bias or to undersupply information, and what disciplining forces affect the pharmacists.

Selected data on retail pharmacies are shown in Exhibit 1. The source of these data are Statistics Canada, the Services

EXHIBIT 1

Retail Pharmacies in Canada - Selected Data for 1983

			Nos.
Licenced Retail Pharmacy (Drug) Outlets - Nos.			5,289
Pharmacists - Nos.			17,066
Physicians - Nos.			41,876
Sales of pharmacy outlets - $ Billion			
Independent stores	$3.3	61%	
Chain stores	$1.4	26%	
Drug depts. of Dept. stores	$0.7	13%	
Total	$5.4	100%	

Average nos. of prescriptions filled per day - about 100
Prescription av. cost $12.05 (c.f. $5.02 in 1976)
Drug cost per patient day in hospitals $5.71 (c.f. $2.75 in 1976)

Average household expenditure for medicines and medical supplies $107.20 (c.f. $71.40 in 1978)

Nos. of chain stores - 69 chains with 815 stores
Average sales per store $1.3 million
Average sales per sq. ft. of store area $386 for (671 stores)

N.B. Sales figures cover toiletries, cosmetics and other front store items as well as prescription and non-prescription drugs.

Source: See text

Branch of the Department of Regional Industrial Expansion, and a Maclean-Hunter publication compiled by the staff of their industry publication, Drug Merchandising [4]. Most of the past data emanates from Statistics Canada, while the recent data relies on commercial surveys. Regardless of the source the figures do not vary greatly.

In 1983, there were about 5,300 retail drug outlets in Canada with sales of drug and non-drug items of about $5.4 billion. Drug sales are about 53% of total sales, and these are evenly divided between prescription and non-prescription drugs. Some non-prescription drugs (over the counter or OTC drugs) are displayed openly on the drugstore shelves, while others are hidden from public view, but may be asked for by the patient or prescribed by the pharmacist. The non-drug items sold are mainly toiletries and cosmetics, but large stores carry a variety of items including stationery, magazines, cigarettes, tobacco, candy and other food items.

Total pharmacy sales (drug and non-drug) are divided 61% to independent stores, 26% to chain stores, and 13% to the drug departments of department stores. Chain drug stores have increased their share of total sales from 10% in 1964 to 15% in 1973 and 26% in 1983. Independents had 78% of the market in 1964 and 61% in 1983. The competition of chains to independents is not unlike that which has taken place in other retail activities, for example food chains and chain bookstores relative to their independent counterparts. Studies in the U.S. show the increased efficiency of drugstore chains due to bulk

purchasing, lower inventory costs, faster turnover of stock and lower overhead costs per unit of sales [5]. In the U.S., the independents and chains belong to different national trade associations, the National Association of Retail Druggists, and the National Association of Chain Drugstores. Indication of their costs and performance can be found in their respective publications.

Chain drugstores in Canada are divided between franchise and non-franchise groups. According to Maclean Hunter, there are 16 franchise groups with 2,321 stores in 1983, and 44 non-franchise chains with 793 stores. If this is a complete count of chain drugstores, it would mean that there are about 2,200 independents and drug departments of department stores. The 16 franchise groups range in number of stores from 19 to 445 stores per group, the largest being Shoppers (445), I.D.A. (369), Uniprix (250) and Associated Pharmacy (212). Total sales per franchise group range from about $10 million to $1.2 billion for Shoppers.

The 44 non-franchise chains range in stores from 4 to 122 stores per chain, with sales from $3 million to $218 million per chain. The largest in this group are Jack Austin (122 stores and $90 million sales) and Boots (117 stores and $218 million sales). Both Boots and Shoppers are foreign-owned.

When total sales of drug and non-drug items are broken down, it is found that chain and independent drugstores account for 90% of the total sales of prescription drugs and 75% of the OTC drugs. The remainder of the prescribed drugs are sold by

the drug departments of department stores, while the other 25% of OTC drugs are sold by department stores, grocery stores and variety stores.

Drug stores are in competition with grocery stores in Canada for at least ten (drug and non-drug) product categories, cold remedies, vitamins, after-shave lotion, headache remedies, deodorants, razor blades, oral antiseptics, sanitary protection, shampoo and dentifrice. A.C. Nielsen has charted their growth and found that grocery sales at $26.8 billion (almost six times drugstore sales) are growing at 5% relative to 15% for drugstores. Chain drugstores and large independent drugstores (sales of $750,000 plus) are the fastest growing groups of stores [6].

In 1980, retail pharmacies employed 46,000 persons, which would include many of the about 17,000 licensed pharmacists. However pharmacists are also employed in hospitals and in the pharmaceutical industry.

At the wholesale level, Drug Merchandising lists 23 wholesaling firms in Canada serving 12,334 stores in 1983 (i.e., a store may be supplied by more than one wholesaler). DRIE lists 25 firms for 1977 with operations located in 45 places across Canada, although mention is made of up to 276 locations. Employment at the wholesale level was about 11,000 in 1980 [7]. Three of the largest wholesalers are National Drug, Drug Trading and Les Pharmacies Universelles serving 4,000, 1,750 and 1,034 stores respectively.

Pharmaceutical manufacturers become involved in wholesaling through divisions or departments which have this

responsibility, but do not tend to own general wholesaling operations. Retail pharmacists combine to form large and small wholesale companies. For example, only pharmacists can own shares in Drug Trading Ltd. Some pharmacists form informal buying groups to negotiate with wholesalers, while some drugs are supplied direct by mail order to customers in remote and rural communities. Both the innovating and generic companies supply wholesalers, but the tendency is for the innovating firms to have the larger proportion of sales to wholesalers. The generic manufacturers market more of their products directly to pharmacies. Wholesalers provide delivery, labelling, and computer services to drugstores. Pills are being ordered in larger volumes, e.g., 100,000 to 250,000 pills in bottles of 500s and 1000s. Pharmacists appear increasingly to be using pill counting machines and pharmacist-assistants to aid in dispensing prescriptions, and wholesalers do not indicate a move towards more prepackaging of different dosage sizes..

The overall structure of the retail pharmacy industry can be gleaned from these data. The four largest retail chains for which there are sales data, namely Shoppers, Pharm-Escomptes, Uniprix and Boots appear to have about 35% of total retail sales in 1983. Data are not included for IDA, Guardian and Associated Pharmacy, so that the 35% must be viewed as a minimum estimate of retail sales concentration at the national level. On a regional basis, concentration may be substantially higher than 35%.

Another interesting statistic is the relationship of

population size to number of licensed retail outlets. Among some of the larger cities across Canada the average population per store is as follows:

Halifax	3,878
Charlottetown	3,850
Montreal	5,399
Quebec City	2,209
Toronto	4,803
Ottawa-Hull	6,047
Hamilton	5,730
London	4,611
Kingston	5,272
Edmonton	4,190
Calgary	4,584
Winnipeg	4,976
Victoria	4,230

If these stores are ranked with Ottawa-Hull = 100, then the list would be as follows:

Ottawa-Hull	100	Calgary	76
Hamilton	95	Victoria	70
Montreal	89	Edmonton	69
Kingston	87	Winnipeg	64
Vancouver	82	Halifax	64
Toronto	79	Charlottetown	64
London	76	Quebec City	37

A high ranking means that there is a larger population per store, or less stores to serve the population in that area. No conclusions can be drawn directly from such raw data, but the question arises as to whether the licensing procedure at the provincial and municipal levels creates higher barriers to entry in some locations than others, and whether these factors account for differences in the profitability of stores.

A pharmacy has to receive a municipal licence to operate and then has to conform to the regulations of the provincial licencing body re inspection, standards, requirements for different types of drugs and no public access areas. In Quebec, store ownership is reserved for pharmacists who may only own a

maximum of two stores: chain stores exist but are based on franchise agreements. Entry appears to be relatively unimpeded unless the regulations can be administered in some discretionary manner. Licencing arrangements in the U.K. limit the number of pharmacies which may be operated in a given area, but no such rule appears to apply in Canada.

3. INDUSTRY PERFORMANCE

The overall performance of the retail pharmacy industry is much more difficult to determine than an outline of industry structure. One observer stated (verbally) that profits and margins for retail pharmacies are above average in comparison with the retail trade generally, and that this is due to the higher risk involved in pharmacy versus other retail operations (to be commented on later). The DRIE report (p. 13) states that "In recent years, retail drug stores have experienced lower returns after tax than retailers generally, both in relation to capital employed and to equity", and on the other hand that "With the exception of Boots Drug Stores (Canada) Ltd., which has incurred diminishing losses since its inception in 1978, profits have been generally strong in drug retailing in recent years peaking to 18.4% on capital employed in 1978" (from p. 2 of the DRIE Subsector Summary Profile of Pharmacies, Patent Medicine and Cosmetic Stores, 1982).

These comments on profit data are conflicting. The DRIE report is based on data from Statistics Canada, Corporate Financial Statistic, No. 61-207; no reference exists for the latter statement.

An examination of retail pharmacy profits from 1977-1981 (most recent data available) can be gleaned from Table 1. Where pharmacy profits are compared with food store and department store profits. These data are derived from firms which are incorporated and thus exclude any single proprietorships and partnerships. Food and department stores are used for comparative purposes because they reflect markets in which consumers have access to information through extensive advertising.

The data show that the average after-tax rate of return on equity (1977-1981) for pharmacies is 74% higher than for food stores and 166% higher than for department stores: profits after tax on total capital employed are higher for pharmacies by 88% and 202% respectively. Other retail profit comparisons could be made, and while pharmacies would not rank the highest, they would be near the top.

There are no data in Canada comparable to that which is provided by the Lilly Digest for retail pharmacies in the U.S., a publication which has been in existence for 50 years and which is well respected by the trade, government officials and academics. Although the Lilly Digest is not based on a random sample of pharmacies, it does use a large sample, namely 1500 independent community pharmacists. The 1983 report provides

Table 1

Profitability of Retail Pharmacies, Food and Department stores Canada, 1977-1981

Profits After Tax

	On Equity			On Capital Employed		
Year	Pharmacies	Food Stores	Dept. Stores	Pharmacies	Food Stores	Dept. Stores
1977	14.4	9.1	3.5	11.8	7.4	2.5
1978	21.3	10.3	6.9	18.4	8.4	4.4
1979	17.5	9.7	5.1	15.5	7.6	3.7
1980	18.9	12.2	10.1	16.0	9.1	7.7
1981	18.6	11.8	8.9	15.5	8.4	7.4
Average 1977-81	18.4	10.6	6.9	15.4	8.2	5.1

Source: Statistics Canada, Corporation Financial Statistics, No. 61-207, Various Years.

information on sales and expenses for 1982 with sales broken down between prescription and other transactions, and with 15 expense categories - see Exhibit 2. Numerous ratios are calculated and related to pharmacies classified by size of sales. Thus the smallest pharmacies with sales under $150,000 per annum have 78% prescription and 22% other sales, and net profit before tax is 1.9% of total sales: the pharmacy is open about 50 hours a week. The largest pharmacies have sales in excess of $1.5 million a year, 70% drugs and 30% other items, and net profit before tax is 2.5% of sales: these stores are open an average of 81 hours a week. The total income (before taxes on income and profits) of the self-employed proprietor is $20,139 in the case of the smallest and $103,344 in the case of the largest pharmacies.

The net profit (before taxes) on net worth for 1,173 U.S. pharmacies averages 20.3%, from a low of 16.5% for pharmacies over 10 years old to 32.8% for pharmacies 2 to 5 years old. Those pharmacies with sales of $400,000 to $600,000 per annum had net profit before taxes of 21.0% of net worth.

A review of corporate income tax returns from U.S. Pharmacies shows that for the same period 1977-1981, the average net income before taxes as a percentage of total assets was 9.6% for incorporated pharmacies versus 7.8% for incorporated food stores - Table 2. These data are not directly comparable with the Canadian data but suggest that pharmacies in both countries earn higher rates of return than for example food stores.

Table 2

Profitability of Retrail Pharmacies and Food Stores U.S.

1977-1981

	Net Income Before Taxes/Total Assets	
Year	Pharmacies	Food Stores
1977	10.7	7.7
1978	11.5	8.9
1979	9.3	8.4
1980	8.3	7.1
1981	8.3	6.7
Average 1977-81	9.6	7.8

Source: U.S. Department of Treasury, IRS, Corporate Income Tax Returns, Various Years.

EXHIBIT 2: Summary Data on U.S. Pharmacy Operations, 1981, 1982

Table 1 *Current trends in pharmacy operations*

Averages per Pharmacy	1982 1,528 Pharmacies	1981 1,750 Pharmacies	Amount and Percent of Change
Total sales	$498,021—100.0%	$439,133—100.0%	+$58,888—13.4%
Cost of goods sold	330,577— 66.4%	288,421— 65.7%	+$42,156—14.6%
Gross margin	$167,444— 33.6%	$150,712— 34.3%	+$16,732—11.1%
Expenses			
Proprietor's or manager's salary	$ 29,965— 6.0%	$ 27,983— 6.4%	+$ 1,982— 7.1%
Employees' wages	56,454— 11.3%	50,689— 11.5%	+$ 5,765—11.4%
Rent	12,018— 2.4%	10,886— 2.5%	+$ 1,132—10.4%
Heat, light, and power	4,437— 0.9%	3,758— 0.9%	+$ 679—18.1%
Accounting, legal, and other professional fees	2,305— 0.5%	2,079— 0.5%	+$ 226—10.9%
Taxes (except on buildings, income, and profit) and licenses	7,455— 1.5%	6,706— 1.5%	+$ 749—11.2%
Insurance (except on buildings)	5,191— 1.0%	4,640— 1.1%	+$ 551—11.9%
Interest paid	4,023— 0.8%	3,612— 0.8%	+$ 411—11.4%
Repairs	1,874— 0.4%	1,974— 0.4%	−$ 100— 5.1%
Delivery	2,329— 0.5%	2,206— 0.5%	+$ 123— 5.6%
Advertising	5,422— 1.1%	4,745— 1.1%	+$ 677—14.3%
Depreciation (except on buildings)	4,898— 1.0%	3,886— 0.9%	+$ 1,012—26.0%
Bad debts charged off	647— 0.1%	636— 0.1%	+$ 11— 1.7%
Telephone	1,776— 0.4%	1,588— 0.4%	+$ 188—11.8%
Miscellaneous	14,082— 2.8%	11,351— 2.5%	+$ 2,731—24.1%
Total expenses	$152,876— 30.7%	$136,739— 31.1%	+$16,137—11.8%
Net profit (before taxes)	$ 14,568— 2.9%	$ 13,973— 3.2%	+$ 595— 4.3%
Total income of self-employed proprietor (before taxes on income and profits)	$ 44,533— 8.9%	$ 41,956— 9.6%	+$ 2,577— 6.1%
Value of inventory at cost	$ 76,216— 15.3%	$ 68,768— 15.7%	+$ 7,448—10.8%
Annual rate of turnover of inventory	4.5 times	4.3 times	
Hours per week pharmacy was open	62	62	no change

11.0% (Heat, light, and power … Miscellaneous) 10.7% (Heat, light, and power … Miscellaneous)

NOTE: These national averages are presented to give a composite picture of the average LILLY DIGEST pharmacy. Comparisons for analysis should be based on the operations of pharmacies of comparable sales and prescription size which appear in one of the 31 arrangements in the "Heart of the LILLY DIGEST."

Table 2 *Current trends in prescription department operations*

Averages per Pharmacy	1982 1,528 Pharmacies	1981 1,750 Pharmacies	Amount and Percent of Change
Sales			
Prescription	$272,527— 54.7%	$239,561— 54.6%	+$32,966—13.8%
Other	225,494— 45.3%	199,572— 45.4%	+$25,922—13.0%
Total	$498,021—100.0%	$439,133—100.0%	+$58,888—13.4%
Value of inventory at cost and as a percent of sales			
Prescription	$ 29,642— 10.9%	$ 26,854— 11.2%	+$ 2,788—10.4%
Other	46,574— 20.7%	41,914— 21.0%	+$ 4,660—11.1%
Total	$ 76,216— 15.3%	$ 68,768— 15.7%	+$ 7,448—10.8%
Sales per dollar invested in inventory			
Prescription	$9.19	$8.92	+$ 0.27— 3.0%
Other	4.84	4.76	+$ 0.08— 1.7%
Size of area (square feet)*			
Prescription	393— 15.6%	385— 16.0%	+ 8— 2.1%
Other	2,131— 84.4%	2,017— 84.0%	+ 114— 5.7%
Total	2,524—100.0%	2,402—100.0%	+ 122— 5.1%
Sales per square foot*			
Prescription	$687.87	$616.27	+$ 71.60—11.6%
Other	104.23	98.13	+$ 6.10— 6.2%
Total	195.08	181.24	+$ 13.84— 7.6%
Number of prescriptions dispensed			
New	13,421— 48.8%	13,239— 48.6%	+ 182— 1.4%
Renewed	14,080— 51.2%	13,986— 51.4%	+ 94— 0.7%
Total	27,501—100.0%	27,225—100.0%	+ 276— 1.0%
Prescription charge	$9.91	$8.80	+$ 1.11—12.6%

*Based on averages of pharmacies that reported all data

Source: Lilly Digest, 1983, p. 5.

There is no information in Canada comparable to that found in the U.S. for the past 50 years either on margins or on profitability and return on investment. It is not possible to state whether pharmacies are more or less profitable than those in the U.S. and if so what the reasons are. Any claims regarding profitability should be treated with great caution. Moreover, if pharmacists are shown to be making a normal return on overall investment, they could still be making high profits on government reimbursed drugs, while cross-subsidizing OTC drugs and non-drug items.

Pharmacists have not appeared interested in making profit information available publicly, although it must be available to them to do their financial planning. Certainly the large chain stores would have a good handle on this information. Many independent pharmacy owners do not appear to keep their financial planning records beyond a year or so, and their current records often seem to require sorting and filing.

In terms of structure there is reasonably good information about pharmacies in Canada. For performance, this is not the case, although the data exist and could be collected if the parties were interested in and willing to do so, as evidenced by available U.S. data. Consequently, claims of performance should be treated with extreme caution. This is especially the case where, for example, Ontario pharmacists are accused of making 'windfall' profits, and the outsider is left with the charges and countercharges ringing in the ears. The editor of the Canadian Pharmacy Journal seems to believe that

windfall profits have existed at times in some provinces. It is also known that governments reimburse pharmacists at prices listed in formularies which are in excess of the drug costs to the pharmacists. The Provincial Auditor in Ontario is the latest person to report windfall profits to pharmacists (Globe & Mail, Dec. 5, 1984, p. 5). When the discussions turns from structure and performance to industry conduct and practice, there are more definitive points to note.

4. INDUSTRY CONDUCT

Pharmacists operate in three markets as far as drugs are concerned, the government reimbursed market, the third party reimbursed market and the cash market (with no reimbursement). The proportions of each market varies by province (and by state in the U.S.), since provincial governments decide whom to reimburse, and by type of pharmacy. In addition reibursement may involve co-payment by the patient, which can provide an incentive to shop for drugs if the patient can effect a personal saving.

The risk element to the pharmacists differs between the three markets. There is no risk in not being paid in the government and third party reimbursed market, and there is probably little risk in the cash market as payment is usually made at the time the drug is dispensed. Thus it seems to be incorrect to state that pharmacists face higher risks compared with other retailers. In fact, it is hard to think of other retailers who are assured of payment in the manner experienced

by pharmacists, and the larger the reimbursed market grows relative to the total, the more this is the case. Delay in receiving government or third party payment could increase the cost of pharmacists' receivables, but some observers note that the existence of the government reimbursed market has allowed some small pharmacies to survive..

Another segmentation of the market to consider is between prescription and non-prescription drugs. The differences are remarkable in a number of ways. Only a doctor can prescribe a prescription drug, but a patient can choose the type of drug and the dosage if it is a non-prescription drug. Prescription drugs are not advertised, at least not to patients, although they are heavily advertised to doctors and pharmacists, while many non-prescription drugs are heavily advertised to patients. There are numerous arguments pro and con advertising prescription drugs to patients, one argument being that there should not be extravagant claims made for what the drug will do, and another being that advertising will encourage drug use and abuse [8]. However when it comes to non-prescription drugs there is little check made on the advertised performance claims (e.g., fast acting) and little concern about overuse and abuse. This is all the more surprising when it is recalled that many drugs move from a prescription to a non-prescription category, Motrin being a recent example.

There are in fact two categories of non-prescription drugs, those which are on the pharmacists's open shelves and those which are hidden or under the counter. There are two

occasions on which the under-the-counter non-prescription drugs are sold: (1) when the patient asks the pharmacist for advice and is sold one of these drugs, e.g., cough syrup with codeine, and (2) when the patient is aware that such a drug exists and asks the pharmacist to dispense it. In the second instance the pharmacist has the discretion of selling it or not, but this situation will not arise if the patient is unaware that such drugs exist. In sum, information and discretionary decision-making powers are handled differently in each segment of the market, and the customer is often equipped with either no information or inadequate information when making a purchase.

The pharmacist, doctor, pharmaceutical manufacturer and government control the flow of drugs as well as the flow of information about drugs. They are aided in this endeavour by various government policies passed presumably to promote the public interest, including that of the consumer. An economic concern is whether or not there is an incentive to provide information which will reduce the price of drugs to patients in these three different markets. The question of incentives is tied to the pricing of drugs sold through pharmacies.

The retail price of drugs consists of the drug cost to the pharmacist plus the markup which the pharmacist adds to these costs. At times, pharmacists have marked up drugs by a certain percentage (often 40%), or they have added a dispensing fee. Whichever practice is used the end result seems to be to aim for an average markup of 40%. Pricing practices vary by markets and by provinces because of the different reimbursement schemes in

each of the three markets.

Ontario can serve as an example of how prices are established. The Ontario Druge Benefit (ODB) program reimburses drug costs for 18% of the provincial population, accounting for about 45% of total prescription sales in the province. The government reimburses those prices which are published in the Ontario formulary (drug catalogue) plus an agreed upon dispensing fee. Each edition (every 6 months) of the formulary contains the prices of single source and multiple-source drugs. The single source drug prices are those submitted by the manufacturers. For the multiple source drugs there are typically prices submitted by the innovator and generic manufacturing companies, and the government reimburses the price which is the lowest in each multiple source category no matter which brand is dispensed.

There are a number of concerns expressed about the prices of single and multiple-source drugs submitted by the manufacturers for inclusion in the formulary. One is that an inflated price is submitted relative to the cost of the drugs actually paid by the pharmacist. If the pharmacist can charge a fee for dispensing an ODB prescription, then the pharmacist's revenue in excess of the drug costs consists of the dispensing fee plus the difference between the formulary price and the price actually paid for the drug; in the trade, the latter is called variously the 'spread' or 'purchasing advantage'[9]. All parties, the innovators, the generic manufacturers, the pharmacists and the government agree that this practice exists.

In this writer's view, only the provincial government has the power and the incentive to end it, but to-date has not exercised its will to do so. The other three parties appear to benefit from the practice, although there are some aspects which need to be explained further. For example, the pricing procedure seems to benefit the pharmacists more than the manufacturers, although the manufacturers follow the practice so as to make their drugs attractive to pharmacists, and ultimately, as will be shown, the pharmacists decide whose drugs to dispense in the case of multiple source drugs. Thus the manufacturers pursue this practice as part of their marketing strategy in order to encourage pharmacists to dispense their drugs.

This pricing procedure in the ODB market was the main reason for the establishment of the Gordon Commission, which reported to the Ontario government in August 1984*. However, it is clear that the pricing procedure established for ODB dispensed prescriptions flows over to the third party reimbursed and to the cash markets for drugs. Pharmacists attempt to use the formulary prices as the basis for their costing of non-ODB prescriptions, but with these they are able to add their 'normal and customary' dispensing fee, which typically is higher than the fee reimbursed for ODB prescriptions. Moreover the pharmacists are not constrained to charge the lowest price in a multiple source drug category when a drug in this category is prescribed to a non-ODB patient. If the ODB formulary prices are inflated due to 'spread', then this effect appears to be

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*The report has been publicly available since late 1984, but only received media attention from August 1985.

carried through and increased by pharmacy pricing procedures in the non-ODB markets. In effect, pharmacists are using the ODB formulary to justify their prices in the non-ODB market.

Countervailing pressures are exercised by third party insurers in the interest of their clients, but the pure cash paying customer has little buying power unless he is knowledgeable about the market for drugs. In most cases, not only is he poorly informed about the therapeutic value of drugs, but he is also ignorant about the mechanics of drug marketing. If the customer is given the information, he may be able to bargain with the pharmacist for lower prices [10].

Pharmacists in Ontario do have discretion in dispensing a prescription under certain circumstances. Consider the following four cases - a prescription filled for ODB reimbursement and one for non-ODB reimbursement, where a brand name multiple-source product is prescribed and where a generic drug is prescribed. In all instances, the pharmacist must dispense the drug as prescribed if the physician writes 'no substitution' on the prescription. This appears to occur in less than 5% of the prescriptions written in Ontario. In the case of a generically prescribed drug, the term 'no substitution' is meaningless as the pharmacist has to select a drug that contains the generic ingredients. For the following examples, we assume that the prescriptions allow for product substitution.

Case 1: ODB and a brand name drug

The pharmacist fills the prescription with any of the drugs in the multiple-source category contained in the formulary, but can charge only the lowest price listed in

this category plus the fee established for ODB prescriptions.

Case 2: ODB and a generic drug

The pharmacist selects a drug from the category and proceeds as in Case 1.

Case 3: Non-ODB and a brand name drug

The pharmacist has two options. He can dispense as written and charge whatever he wants, where the final price to the customer will be a combination of drug cost and dispensing fee. In practice the pharmacist often seems to use the drug price in the formulary and adds on a 'normal and customary' as opposed to the lower 'ODB' fee, so that the prescription is priced higher in the non-ODB market. How the prescription price is reached is largely immaterial. Some pharmacists may increase the ingredient cost and fee, others one and not the other. However the final result is a higher prescription price in the non-ODB market. If pressed by the customer for a pricing explanation, pharmacists are known to have shown the customer the ODB formulary prices, and to explain that this is what the government allows or requires them to charge plus their fee. Most customers do not seem to ask.

In Case 3, the pharmacist has a second option which is to select another drug from the multiple source category. If this option is chosen, the pharmacist is constrained by law in his pricing, so that he can charge only the lowest price drug that he has in his inventory in

the multiple source category (N.B. not the lowest price published for this category), plus the ODB fee as opposed to his 'normal and customary' fee. There are a number of issues related to this option. First, pharmacists claim and others agree that there is no financial incentive for substitution to occur. This must be because the 'spread' on the substituted drug is insufficient to make up for the lower fee and the 'spread' on the originally prescribed drug. Consequently very little substitution actually occurs. Second, it is difficult to monitor what a pharmacist has or had in his inventory at the time when the substitution took place, so that even when substitution occurs it is not possible to know whether the customer received the lowest price due to him.

Case 4: Non-ODB and a generic drug

In this case the pharmacist has to select a drug and therefore follows the rules that apply in the second option of Case 3. The monitoring aspects of Case 3 therefore apply to Case 4 as well. It appears that there is relatively little generic prescribing. Younger doctors are more prone to prescribe generically, and this has something to do with their awareness of drug costs to patients, perhaps as a result of material presently taught in medical schools. Older doctors appear more likely to prescribe a brand name, and one that they are familiar with and have been using for a number of years. Drug companies are known to be active in reaching medical

students as well as doctors to discourage generic prescribing, but the importance seems to be lessening to some extent with newer graduates.

The previous four cases indicate the complexity of the drug dispensing and pricing procedure. Only the Ontario case is discussed. Each province differs in terms of formulary v. no formulary, open v. closed formulary, the extent of no-substitution, mandatory v. discretionary substitution, the categories of the population covered by provincial reimbursement and the extent of third party and cash reimbursement, as well as the extent of co-payment by patients. The impact of these provisions on drug prices has yet to be untangled. What is clear is that governments, pharmacists and customers have unequal amounts of information about how the system works in each jurisdiction. The customer is likely almost always to be the least informed on the economic as well as the therapeutic aspects of drugs. This may not be true for some customers such as chronic (repeat) users who pay for the drugs themselves although these persons are usually covered by reimbursement plans.

The information aspects of drug marketing have been referred to a number of times. This is crucial at all levels and will first be discussed at the retail level.

(a) Advertising at the Retail Level

Advertising can carry information about prices, location of purchases, content of the drug and qualitative aspects

concerning safety and efficacy. There is considerable difference in the way in which drugs are advertised according to the recipient. For example prescription drugs are advertised heavily to physicians and pharmacists but not to patients, while OTC drugs are advertised through newspapers and television to the public. Price advertising occurs in the latter instances but seldom in the former. On the question of price advertising or posting for prescription drugs at the retail level, Cady, writing about the U.S., states that "the regulation of prescription drug price advertising...appears to benefit pharmacists only" (p. 19), and that "prices are significantly higher across all size classifications of pharmacies in states regulating prescription drug price advertising than in non-regulatory states. The conclusion to be drawn is that these regulations represent an effort by some retail pharmaceutical suppliers to increase their welfare at the expense of consumers through the public policy process" (p. 20)[11].

In Ontario, the College of Pharmacy has the power to regulate retail price posting. It has done so by establishing a set of regulations under the Health Disciplines Act [12] which permits posting but under conditions that discourage posting because of the procedures and amount of information which has to be supplied by a pharmacist. Consequently, pharmacists in practice do not post prices in Ontario, and frequently will not quote prices over the telephone, although they will usually quote prices before filling a prescription which is brought into

the store, by which time the buyer has incurred travel-search costs. As a result, customers pay whatever is charged once the prescription has been filled. They have little incentive to ask if they are covered by a third party program unless there is some co-payment provision. In the pure cash market, co-payment is 100% and the incentive would be strongest here. Most customers do not know that a cheaper price may be forthcoming if the pharmacist uses his discretion to substitute. On occasions inquiring customers have been told that through substitution the drug will actually cost more. Such statements can only be made if customer ignorance persists. It seems clear that competition and downward pressure on drug prices will increase through either required drug price posting or an incentive for pharmacists to compete on a price basis. To argue that advertising generates overuse or abuse of drugs ignores the fact that such advertising is undertaken to doctors and pharmacists in a manner which can reach consumers anyway. Moreover when a drug acquires an OTC status the advertising environment changes substantially and price and other messages are advertised.

It has been noted recently that residents of Windsor are viewing television commercials by U.S. pharmacies for generic prescription drugs. These firms are advertising the price advantage of generic over brand name drugs. Similar advertisements in U.S. newspapers are quoting the price of the generic drugs in 100's, and note in smaller print that other quantities may be priced higher. In fact, instances have been recorded whereby it costs more to buy 50 than it does to buy 100

pills, and this may be enforced if there is a limit to the duration, e.g., 30 days, for a prescription.

(b) Information at the physician level

Doctors can assist in generating competition amongst pharmacists by prescribing cheaper drugs, prescribing generically and by advising patients of where drugs can be purchased more cheaply (if this is possible). The prescribing habits of doctors seem to be that they use a small number of drugs for most of their prescriptions - a rough figure suggested is less than 25 drugs for 80% of the prescriptions written. The short list is the result of experience and while the names may change, the list does not seem to be motivated by customer price considerations.

The reluctance to prescribe generically has been noted, especially in the case of older doctors. A senior member of the profession, who has taught in medical schools, noted that the reluctance was due to the doctor either not being certain what the generic name was, nor how to spell it. Moreover the profession seems to be generally sympathetic to the case of the innovators that they are inadequately rewarded for their research efforts due to compulsory licencing in Canada.

It is interesting to note that hospital pharmacists play an educational role and inform physicians about cheaper drugs. A hospital typically has its own formulary which will be more restricted than the ODB formulary, with perhaps only two drugs listed in a multiple source category. The pharmacists will

encourage physicians to use the cheaper of two drugs in a category, and not to prescribe drugs outside of the formulary. Most doctors seem to welcome the information which the hospital pharmacist provides, if it is given in the right manner. The pharmacist may point out that drug cost savings will permit more money to be spent on hospital equipment and facilities. In contrast, retail pharmacists say they are reluctant to substitute a cheaper drug even when they have the option, because they know that doctors prefer the drug they have prescribed even if 'no substitution' is not written.

Thus in addition to information impediments at the retail level, there are impediments to competition because of physicians' prescribing procedures, which are encouraged by certain pharmaceutical manufacturers. Any physician will willingly describe their visits from the manufacturers' detail men, the literature, the free samples, the gifts, etc. Generic manufacturers aim their information more at the pharmacist, and at persuading governments to publish formularies where their products will be listed.

(c) Pharmacist Services

Pharmacists point out that they perform many services for which they are not adequately reimbursed. An economist might ask whether there is in fact cross-subsidization and that the mark-up on drugs and other front store items is sufficient to cover the cost of these services. It is difficult to dissect the cross-subsidization issue, especially since the subsidised output is a service, advice, which is very difficult either to

measure or to cost. It should be possible to measure pharmacy profitability and return on investment, and would be if the parties were willing to cooperate and disclose such information. In its absence, indirect indicators of pharmacy entry and exit, growth, and price changes will have to be used to measure competitiveness.

The pharmacy is often the first line of medical advice to the individual who does not want to take the time or spend the money to visit a doctor. The pharmacist then diagnoses and prescribes a non-prescription drug, or the pharmacist may send the individual to a doctor, and the individual may or may not return to have the prescription filled by the pharmacist that gave the advice (a free-rider problem). Thus there is an economic incentive for the pharmacist to sell something on the spot. The pharmacist can supplement the doctor's advice if the pharmacist has records of what the patient is taking in terms of other drugs, so as to avoid any adverse effects of drug interaction. Pharmacists use this point to argue that patients should use the same pharmacist and not shop for drugs. The sense behind this suggestion has to be weighed against the facts that patients move from city to city, patients can purchase OTC drugs without advice and these may interact, and that doctors give out drugs from the numerous free samples which they receive from manufacturers, so that retail pharmacists are not the sole source of drugs. There is no doubt that the pharmacist plays an important role in the health delivery system. The question is whether he is being adequately rewarded (under or over) and again the availability of information.

5. GOVERNMENT POLICY AT THE RETAIL LEVEL

Government policies impinge on retail pharmacies in numerous ways. We will concentrate on four aspects, conditions of entry for pharmacies and pharmacists, government reimbursement schemes, and conditions of store operations.

1. Entry - provincial health legislation determines the way in which individuals can qualify to become pharmacists. Colleges of pharmacy set professional standards and administer the profession. The existence and size of pharmacy faculties will be a major determinant of numbers in the profession plus migration in and less migration out. In some jurisdictions, a pharmacy must be owned by a pharmacist, while all must employ qualified pharmacists. Provincial and municipal policies determine the number of licenced pharmacies in an area and it is notable that, as shown above, there are differences in the number of pharmacy outlets per capita between different provinces and cities. It is not known whether pharmacy licencing restricts entry. The author was told that the discretionary powers of the licencing authorities are used to limit entry of new pharmacies, but this has not been confirmed.

2. Government reimbursement schemes - using Ontario again as an example, the ODB scheme has what can be viewed as an anti-competitive effect in addition to the points raised above. The ODB scheme sets the retail price at which pharmacies will be reimbursed for all drugs dispensed, where the prices are printed in the formulary, and to which an agreed-upon dispensing fee is added. Thus, all pharmacies receive the same reimbursed amount

for a given drug prescribed to an ODB recipient. The result is government promoted resale price maintenance and the absence of price competition between retail pharmacies in this market. Meanwhile pharmacies do have differences in their costs of operation, and any competition that occurs will be in non-price forms, such as longer hours, more service, brighter stores and advertising, although not price advertising. Under ODB a retail store may charge less than the reimbursed amount, but there is little incentive to do so, unless the customer is interested in saving money for the government. In fact, no such price competition has been detected and the stores seem to believe that there is no reason for them to charge a lower price than that which the government will reimburse. (If ODB works like OHIP, then a claim that was less than the ODB rate would be reimbursed at the ODB rate with the patient collecting the difference.) With ODB, the pharmacist is paid rather than the patient, and there would be no incentive for the pharmacist to ask for less if he could get more.

Another effect of this scheme is that pharmacists as a group will tend to negotiate for fees that will be high enough to keep the least efficient pharmacy in business, thus allowing a windfall to the more efficient pharmacy. Finally, because the ODB prices are used in the non-ODB market, this procedure spills over and affects cash customers, although there is some price variation between pharmacies in the cash market.

3. Conditions of store operations - in the U.S., Cady found that in addition to advertising restrictions, there were regulations regarding the physical requirements of establishments (amount of front/back store space), pharmacist ownership requirements, and competing distribution methods (such as mail-order prescriptions)[13]. The extent of these regulations need to be researched for Canada - for example, it is known that in Quebec the front- and back-store operations have to be separated, and there is a size limitation on the back-store operation in B.C.

COMPETITION

The disciplining forces affecting pharmacists can be summarized as follows in terms of 1. horizontal competition between retail pharmacists, 2. vertical competition from suppliers and from customers, 3. potential competition from new entrants, and 4. substitutes from technological including organizational change.

1. Horizontal competition - pharmacists can be expected to compete with each other in a given regional market in terms of price competition for non-prescription drugs and for non-drug items, but not for prescription drugs (for reasons mentioned above). Independent community pharmacists are in strong competition with chain store outlets, where the latter are increasing their market share. Other competitors include retail pharmacies in hospitals, hospital pharmacies to a limited extent, drug departments of department stores, and grocery,

variety and other outlets for non-prescription drug items. Retail pharmacies may compete in non-price ways for prescription drugs by advertising their location and hours of operation, their delivery services and the general advice which they provide to patients.

2. Vertical competition - each pharmacist usually confronts only one or two wholesalers in his area, and has to purchase brand drugs from the main manufacturers whose brands will be prescribed. Independent stores group to buy in order to get prices as low as those paid by chain stores. Some wholesale operations are owned by retailers in order to obtain lower prices. Customers in Canada do not provide much if any countervailing buying power to retail pharmacists because of the lack of information in the market place for prescription drugs. Repeat users of drugs can be expected to be more informed than sporadic users. Since hospitals tend to buy their drugs directly from wholesalers, hospital pharmacies do not exercise buying power to retail pharmacists.

3. Potential entrants - these would include new independents, possibly new chains by way of takeovers as in the case of Imasco (Shoppers) and Boots, or by establishing new chain outlets, and mail-order drugs. More department stores may decide to enter the industry.

4. Substitution - prescription drugs may be a substitute for some other health treatment such as physicians' services, hospitalization, institutional care or changed lifestyles. If the population becomes healthier, or if other treatments are

found to be superior to drugs, then this will force greater competition on pharmacies, as would the discovery of some wonder drug which reduced the need for other drugs. In fact a healthier population also means a longer living population, with older people requiring more drugs rather than less, so that this trend may favour drug manufacturers and distributors. It is noted that pharmacists lobby for limiting the days of dosage which may be dispensed at any one time. In this way a fee can be collected each time the prescription is filled.

6. SOME NOTES ON U.S. EXPERIENCE

1. Chain drug stores have increased their share of the market at the expense of independents. The chains have lower prescription drug prices than the independents by about 20%. Scale economies in chain operations are seen in lower input costs (per unit), higher turnover, lower inventory or expenses as a lower percentage of sales [14].

2. Public interest research groups operate in several states and collect drug price information, e.g., Texas, Iowa, New York, Colorado, N. Carolina, Oregon and the San Francisco Consumer Action Group.

3. States have different restrictions on store layout and advertising [15].

4. The National Association of Retail Druggists (NARD) is lobbying for antitrust exemption for drugstores in order that they can bargain collectively with third party insurers, who are felt to be squeezing the profit margins of the retail drugstores [16].

5. Independents are facing competitive pressure from chain stores, some of whom are purchasing wholesalers who may no longer supply independents [17].

6. Mail order drugs are providing competition to pharmacists [18].

7. Generics account for 20% of dispensed prescriptions and 13.5% of prescription sales [19].

8. NARD is lobbying for a category of drug between physician prescribed and OTC. This category would be pharmacist prescribed and would occur when a drug first moved from the prescribed to the OTC category [20].

9. Legislative approval has been given to extend the patent on drugs by five years, but at the same time to make it easier for generic manufacturers to obtain approval when the patent ends [21].

10. Data has been collected on the dispensing habits of pharmacists where doctors prescribe generically. The data are for 22 drugs prescribed generically in 1979 and 1984. In 1979, pharmacists selected an innovator brand company product as the leading drug dispensed in all 22 cases and usually by a large margin. Thus the McNeil product was the leader with 70.3% for acetaminophen with codeine. By 1984, a generic manufacturer was the leader in seven cases, an innovator was leader in thirteen cases but the lead (%) had been cut drastically, and an innovator had increased the lead slightly in two cases [22].

11. In 1978-79, there were about 52,000 retail drug outlets and 160,664 licensed pharmacists in the U.S., 112,000 of

whom were known to be in active practice. The active group was employed 39% in independent stores, 29% in chains, 26% in hospitals, 6% in manufacturing and other. About 70% of those working in independent stores were owners or partners of their own businesses [23].

7. SUMMARY

The impression gained about current economic conditions in U.S. retail pharmacies is strong competition between chains and independents, with the former promoting discount drug outlets. Pressure is brought to bear on pharmacies on the buying side from the managers of third party health insurance plans. At the same time, on the supply side, independent pharmacies are finding it difficult to receive the same prices for drugs as are charged to chain stores. Surrounding the industry are public interest research groups which monitor and compare retail drug prices. Finally, unlike Canada, there is detailed information on the revenues, expenditures and profitability of drugstores.

In Canada, organizations of pharmacists appear to have been powerful politically, especially at the provincial government level. Not only do these governments depend on their colleges of pharmacy, but the retail trade associations have had strong political ties at the cabinet level. Because pharmacists are part of the health care industry, and are in touch with numerous voters on matters that affect the voters' personal well-being, pharmacists have been able to exercise influence with politicians.

The industry structure at the retail pharmacy level in Canada is potentially very competitive. The potential appears not to be achieved in the case of prescription drugs primarily because of inadequate and biased flows of information about drug prices, which is aided by the way in which provincial government reibursement plans are administered. These plans may unwittingly raise the cost of drugs to customers and governments. Thus, even if, because of compulsory licencing, drug costs are lower in Canada than they might otherwise be, they may still be higher than they would be if there was more competition at the retail pharmacy level.

On a related health care issue, Weisbrod concludes that [24]

> The persons with the best technical knowledge for evaluating health services are the providers, because they understand better than consumers (though far from perfectly) the nature of the system in which medical care inputs operate; yet providers do not always have incentives to be self-critical or to seek out lower-cost procedures. (Providers are not always the best-informed persons; patients have a great deal of information, but their lack of technical training limits their ability to interpret it.) Information problems are fundamental to evaluating and rationalizing the health care system. Ethics codes, at least in their more idealistic conceptions, claim to cope with possible conflicts of providers' interests in the light of (a) the consumers' difficulty in judging quality, and (b) the associated need by the consumer-patient to trust health care providers. Do the codes work at all satisfactorily and, if so, under what conditions? Or are they (as economists have tended to consider them) nothing more than monopolistic devices for reducing competition and external pressures from consumers and government?

This observation is pertinent to the circumstances of retail pharmacists in Canada.

These conclusions are based on observations of the industry and discussions with numerous industry participants. The available data have been indicated. What is clearly required is a study of the efficiency and profitability of the retail pharmacy industry in Canada, undertaken in a manner which will allow yearly comparisons to be made. The Lilly Digest provides an example of what information could be collected, although the sampling methods could be improved. Without continuing good information, we are likely to have successive commissions and task forces asked to report on this topic.

Footnotes

1. See B.A. Weisbrod, Economics and Medical Research (Washington, American Enterprise Institute, 1983), pp. 3-30.

2. M.E. Porter, Competitive Strategy (New York, Free Press, 1980).

3. For example, see O.E. Williamson, Markets and Hierarchies (New York, Free Press, 1975).

4. Statistics Canada, Cat. Nos. 63-006, 46-221, 62-550, 46-233, 65-007, 65-203, 65-004; A Report on the Canadian Drug Store Market 1984 for Drug Merchandising, by the Maclean Hunter Research Bureau, Toronto, Sept. 1984; Distribution Services Branch, Department of Regional and Industrial Expansion (DRIE), preliminary report Oct. 4, 1982.

5. J.F. Cady, Drugs on the Market, (Toronto, D.C. Heath, Lexington Books, 1975).

6. Drug Merchandising, Sept, 1984, pp. 5-8.

7. DRIE Report, op. cit., p. 9.

8. See T.K. Gusaman, Retail Prescription Drug Price Disclosure in Canada: Policy Perspectives (Ottawa, Consumer and Corporate Affairs Canada, Oct. 20, 1979).

9. This differential is noted in the ODB formulary.

10. This bargaining power is illustrated in M. Gherson et al., "The Price of Prescription Drugs", Protect Yourself, June 1984, p. 7 - article attached to Submission by the Association of Canadian Community Pharmacists, Aug. 1984.

11. J.F. Cady, Restricted Advertising and Competition, The Case of Retail Drugs (Washington, D.C., American Enterprise Institute, 1976).

12. Ontario, Health Disciplines Act, Pharmacy, Regulation 451, Section 42, pp. 150-1.

13. Cady, "Drugs on the Market", op.cit., p. 126.

14. See J.P. Northrup, Prescription Drug Pricing in Independent and Chain Drugstores (U. of Pennsylvania Industrial Research Unit, Drug Industry Series No. 4, 1975), pp. 51-2.

15. Ibid., p. 1.

16. NARD Journal, Sept. 1984, p. 30.

17. NARD Journal, July 1984, p. 61.

18. Ibid.

19. Ibid.

20. NARD Journal, March 1984, p. 24.

21. American Druggist, Oct. 1984, p. 1.

22. Ibid.

23. NARD Journal, August 1984, pp. 47-8.

24. Weisbrod, op.cit., pp. 22-23. An interesting theoretical tretment of prices in medical care markets where the consumer is ignorant and experiences high search costs can be found in A. Glazer, "The Client Relationship and a Just Price", American Economic Review, Dec. 1984, pp. 1089-95.